

New taxa of Cossidae from SE. Asia

(Lepidoptera, Cossidae)

by

ROMAN V. YAKOVLEV

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Summary: Two new genera of Cossidae from the Oriental fauna are described: *Garuda* gen. nov., *Butaya* gen. nov. (Zeuserinae BOISDUVAL, [1828]); and nine new species: *Patopta ganesha* spec. nov. (LT: Nepal, Ganesh Himal, valley of Mailung Khola), *Cossus siniaevi* spec. nov. (LT: China, Shaanxi prov, Tai Bai Shan Mts., Tsiling Mts., Houzhenzi), *Paracossus khmer* spec. nov. (LT: S. Cambodia, Sre Klong env., Kirirom), *Paracossus microgenitalis* spec. nov. (LT: S. Borneo, Sabah prov., Trus Madi bei, Apin Apin), *Paracossus predictus* spec. nov. (LT: N. Celebes, Minahassa) (Cossinae LEACH, [1815]), *Garuda galina* spec. nov. (LT: China, Yunnan prov. (NE), Jinsha river, Tiger leaping gorge), *Butaya gracilis* spec. nov. (LT: China, W. Yunnan prov. Xishuangbanna Dai auton. pref., Puwen, 30 km SSW of Simao), *Trismelasmos robinson* spec. nov. (LT: Philippines, Leyte (S), Mt. Balocaue), and *Panau borealis* spec. nov. (LT: China, W-Yunnan prov., Xishuangbanna Dai auton. pref., Puwen, 30 km SSW Simao) (Zeuserinae BOISDUVAL, [1828]). One new synonym is stated: *Cossus cossus chinensis* ROTHSCHILD, 1912 = *Cossus cossus orientalis* GAEDE, 1929, syn. nov.

Резюме: В статье приводятся описания новых таксонов из ЮВ Азии: два рода – *Garuda* gen. nov., *Butaya* gen. nov. (Zeuserinae BOISDUVAL, [1828]); и 9 новых видов: *Patopta ganesha* spec. nov. (LT: Nepal, Ganesh Himal, valley of Mailung Khola), *Cossus siniaevi* spec. nov. (LT: China, Shaanxi prov, Tai Bai Shan Mts., Tsiling Mts., Houzhenzi), *Paracossus khmer* spec. nov. (LT: S. Cambodia, Sre Klong env., Kirirom), *Paracossus microgenitalis* spec. nov. (LT: S. Borneo, Sabah prov., Trus Madi bei, Apin Apin), *Paracossus predictus* spec. nov. (LT: N. Celebes, Minahassa) (Cossinae LEACH, [1815]), *Garuda galina* spec. nov. (LT: China, Yunnan prov. (NE), Jinsha river, Tiger leaping gorge), *Butaya gracilis* spec. nov. (LT: China, W. Yunnan prov. Xishuangbanna Dai auton. pref., Puwen, 30 km SSW of Simao), *Trismelasmos robinson* spec. nov. (LT: Philippines, Leyte (S), Mt. Balocaue), и *Panau borealis* spec. nov. (LT: China, W-Yunnan prov., Xishuangbanna Dai auton. pref., Puwen, 30 km SSW Simao) (Zeuserinae BOISDUVAL, [1828]). Устанавливается один новый синоним: *Cossus cossus chinensis* ROTHSCHILD, 1912 = *Cossus cossus orientalis* GAEDE, 1929, syn. nov.

Data on Cossidae of S. Asia are given in few publications, mostly by ROEPKE (1957), ARORA (1976), HOLLOWAY (1986) and HUA et al. (1990), where many new species and genera were described, mostly from China, Indonesia and India. A remarkable work by SCHOORL (1990) more or less brought order into the system of the Cossidae of the world fauna and many new genera were very reasonably proposed. Nevertheless, the species composition of Cossidae of the tropical Asia should be updated substantially. In the course of treatment of old and recent material in a number of collections (mostly in the THOMAS WITT Museum) I found a number of new species, two of which represent also new genera. They are described below.

Abbreviation list

AHC – collection of ARMIN HAUENSTEIN (Untermünchheim, Germany)

BMNH – The Natural History Museum (London, U. K.)

MHUB – Museum für Naturkunde der Humboldt-Universität (Berlin, Germany)

MWM – THOMAS J. WITT Museum (München, Germany)

RMNH – Nationaal Natuurhistorisch Museum (Leiden, The Netherlands)

ZFMK – Zoologisches Forschungsinstitut und Museum Alexander Koenig (Bonn, Germany)

Patopta ganesha spec. nov.

(colour plate XIX, fig. 1; text figs. 1, 2)

Material

Holotype ♂: Nepal, Ganesh Himal, valley of Mailung Khola, 1150 m, 22.V.1995, 85°03' E; 28°05' N, Gy. FABIAN leg. (MWM).

Paratypes: 5 ♂♂, Nepal, Ganesh Himal, valley of Mailung Khola, 1150 m, 22.V.1995, 85°03' E; 28°05' N, Gy. FABIAN leg. (MWM).

Description

Male. Forewing length 15 mm. Antennae bipectinate. Forewing broad with rounded apex. Its upperside dark with a row of narrow transversal bands more expressed in medial and sub-marginal zones; fringe evenly dark. Hindwing evenly black with a black fringe.

Male genitalia. Uncus triangular; gnathos arms long and fusing to form a broad gnathos densely set with spinules. Valva broad with a semicircular projection on its costal margin while its outer margin is cut slantingly from costal to hind one. Arms of transtilla wide, hook-like. Juxta wide with two densely punctured lateral processes. Saccus rounded. Aedeagus stout, short; vesica opening occupies about 1/2 of its length on dorsal position. Vesica without cornuti. Female unknown.

Diagnosis

From the close species *Patopta paradoxus* (HERRICH-SCHÄFFER, [1851]) well differing by a much darker coloration and by the genitalia structure: the latter species has narrower arms of transtilla, a narrower aedeagus, somewhat inflated to the apex with the vesica opening occupying the apical position, and two small lateral projections on the vesica.

Range

Nepal, Ganesh Himal, valley of Mailung Khola.

Etymology

Ganesha – a hero of the epic poem Ramayana.

Cossus siniaevi spec. nov.

(colour plate XIX, figs. 2, 3; text figs. 3–5)

Cossus chinensis sensu HUA et al., 1990 nec ROTHSCILD, 1912.

Cossus chinensis sensu YAKOVLEV, 2004 nec ROTHSCILD, 1912.

Material

Holotype ♂: Shaanxi prov, Tai Bai Shan Mts., Tsiling Mts., Houzhenzi, 33°53' N; 107°49' E, 1500 m, June 2000, local collector leg. (MWM).

Paratypes (all China, all in MWM): 2 ♂♂, Shaanxi prov., Ning Shan, 1500 m, near Ningshan town, 33°44' N; 108°26' E, June 2001, loc. collector leg.; 1 ♂, Shaanxi prov, Tai bai Shan Mts., Tsiling Mts., Houzhenzi, 33°53' N; 107°49' E, 1500 m, June 2000, local collector. leg.; 4 ♂♂, 1 ♀, Shaanxi prov, Tai bai Shan Mts., Tsiling Mts., Houzhenzi, 33°51' N; 107°49' E, 1600 m, 1.–12.VIII.1999, local collector leg.; 2 ♂♂, Shaanxi prov, Tai bai Shan Mts., Tsiling Mts., Houzhenzi, 33°53' N; 107°49' E, 1500 m, september 2000, local collector leg.; 4 ♂♂, Shaanxi prov, Tai bai Shan Mts., Tsiling Mts., Houzhenzi, 33°51' N; 107°49' E, 1600 m, May 2001, local collector leg.; 1 ♂, 1 ♀, Shaanxi prov, South Taibaishan Mts., Tsiling Mts., Houzhenzi, 33°53' N; 107°49' E, 1350–2000 m, 27.V.–8.VI.1999, MURZIN leg., coll. Dr. A. SCHINTLMISTER; 4 ♂♂, China, Jiangxi, Wuy Shan, Fujian border, 50 km NE of Yingtan, 27°56' N, 117°25' E, 1600 m, May 2002, SINIAEV et loc. collectors leg.; 2 ♂♂, China, Jiangxi, Wuy Shan, Fujian border, 50 km NE of Yingtan, 27°56' N, 117°25' E, 1600 m, June 2002, leg. SINIAEV et loc. collectors; 1 ♂, Jianxi prov., Wuyi Shan, Xipaihe village, 1500 m, 27°54' N ; 117°20' E, July 2003, SINIAEV & his team leg.; 1 ♂, Szechuan, 1930.

Description

Male. Forewing length 31–40 mm. Antennae unipectinate, that is a characteristic for the genus. Hind tibia with two pairs of spurs, the hind one strongly reduced to a small processus covered with warts. Head and thorax yellow above. Forewing strongly elongate but with a rounded apex, its upperside ground colour dark-brown with a pattern of narrow wavy black streaks characteristic for the genus, with a broad greyish-white patch in the wing's medial zone and at the apex and a weakly expressed spot of brown scales in the medial zone closer to the hindwing margin. Fringe chequered. Hindwing evenly grey.

Male genitalia large, strongly sclerotized. Uncus wide, triangular; gnathos set with spines; valva costal margin with a processus directed up and inside. Arms of transtilla wide, hook-shaped; saccus small, rounded. Aedeagus straight, thick; vesica opening on dorsal side occupies $\frac{2}{3}$ of its length and is rimmed with small spinules. Vesica without cornuti.

Female. By external characters strongly resembles male but somewhat lighter. Forewing length 40–44 mm.

Diagnosis

Cossus siniaevi spec. nov. used to be repeatedly mentioned in works by Chinese colleagues (e.g. HUA et al., 1990) as *Cossus chinensis* ROTHSCILD, 1912, that resulted from an incorrect notion of the taxon described by ROTHSCILD.

Until recently it was thought that SE. Russia, Korea and China are inhabited by a distinct subspecies *Cossus cossus orientalis* GAEDE, 1929 (LT: North Korea, Seishan) (col. pl. XIX, fig. 4), while C. and SE. China are populated by *Cossus cossus chinensis* ROTHSCILD, 1912 (LT: China: Tsingtau) (col. pl. XIX, fig. 5) (the image of the type specimen is published by courtesy of the Council of Trustees of BMNH), the latter being mentioned in Chinese works as bona species. Examination of the type specimens of *Cossus cossus orientalis* and *Cossus cossus chinensis* proved their conspecificity while studying a large series (118 ♂♂ and 14 ♀♀) of *Cossus cossus* (LINNAEUS, 1758) from the eastern and south-eastern parts of its range (SE. Russia, N. and S. Korea, different regions of China) showed that they are quite homogenous and represent a

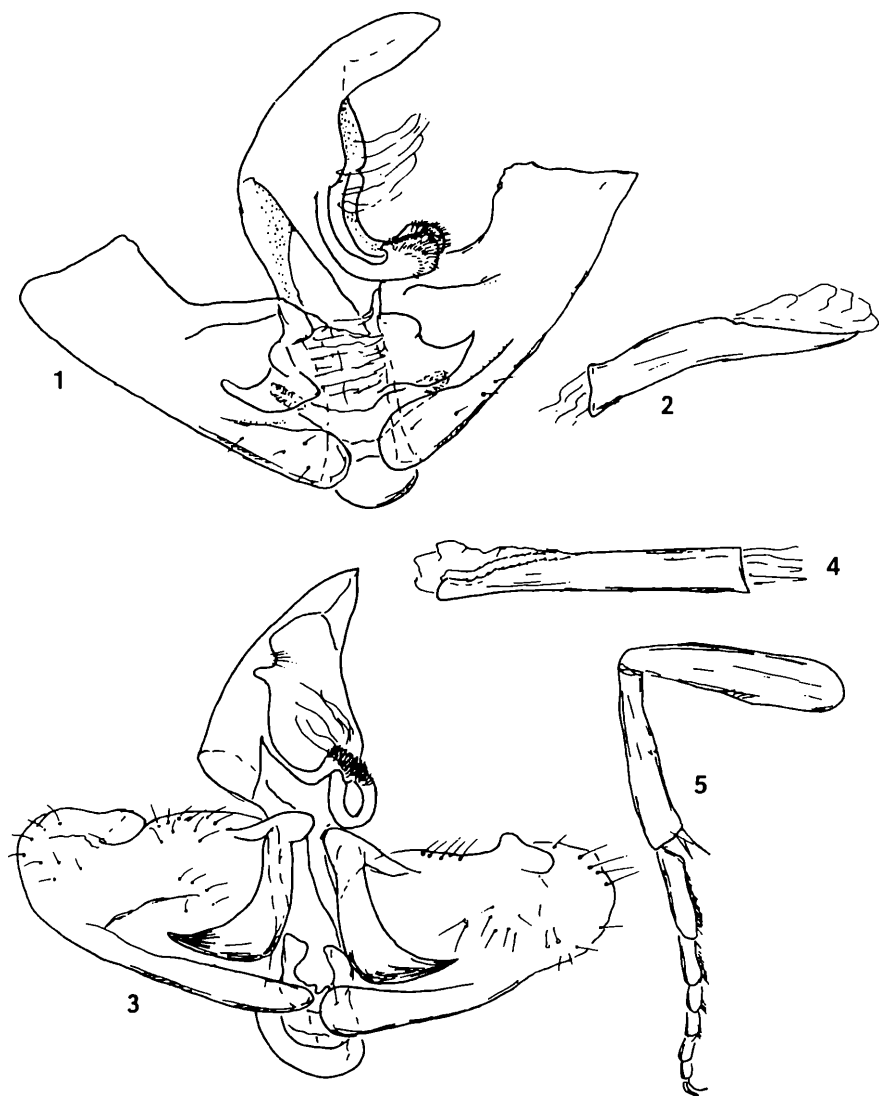


Fig. 1: Male genitalia of *Patopta ganesha* spec. nov., frontal projection.

Fig. 2: Aedeagus of *Patopta ganesha* spec. nov., lateral projection.

Fig. 3: Male genitalia of *Cossus siniaevi* spec. nov., frontal projection.

Fig. 4: Aedeagus of *Cossus siniaevi* spec. nov., lateral projection.

Fig. 5: Back tibia of male of *Cossus siniaevi* spec. nov., lateral projection.

subspecies well differing from the nominotypical one. Thus, a new synonymy is proposed: *Cossus cossus chinensis* ROTHSCILD, 1912 = *Cossus cossus orientalis* GAEDE, 1929, **syn. nov.** The new species differs well from *Cossus cossus chinensis* ROTHSCILD, 1912 by a number of characters: a longer forewing with a more expressed light pattern, a thorax yellow above, by the genitalia structure, by reduction of the proximal spur pair on the hind tibia.

Notes on the range

A male of the new species from the territory of Russia is supposedly preserved in the collection of Zoological Museum of Moscow State University (the A. TSVETAEV collection) with the following label: Russia, Primorskii Krai, Kaymanovka village, 27.07.1967, ?, TSVETAEV. Unfortunately, it has been examined only externally and the genitalia structure has not been studied, so I do not include it into the type series. Besides, Dr. VLADIMIR V. DUBATOLOV, the curator of the Siberian Zoological Museum at the Institute of Systematics and Ecology of Animals of the Siberian Division of the Russian Academy of Sciences (Novosibirsk) kindly communicated me that a female from southern Primorye, which corresponds to the characters of the new species, had been kept in the Museum until it was taken on loan not being returned until now.

Etymology

The species is named after Mr. VIKTOR SINIAEV [SINYAEV], a collector of a part of the type series.

Range

China (Shaanxi, Szechuan, Jianxi), ?SE Russia (Primorskii Krai).

Paracossus khmer spec. nov.
(colour plate XIX, fig. 6; text figs. 6, 7)

Material

Holotype ♂: S. Cambodia, Sre Klong env., Kirirom, 720 m, 4.–12.I.2001, L. CHERNYSHOV & V. Kosov leg., GPrHet MWM-9376 (MWM).

Description

Male. Forewing length 15 mm. Antenna bipectinate. Forewing light grey, along costal margin there is a row of small black dots and a row of black submarginal dots; there is a relatively large black dot in the basal area; fringe chequered. Hindwing darker, unicoloured.

Male genitalia. Uncus narrow, triangular. Gnathos punctured. Valva broad, with a small crest-like projection on costal margin and membranous apex. Arms of transtilla long, curved. Juxta with wide lateral processes bearing additional triangular lateral projections. Saccus rounded. Aedeagus straight, vesica opening occupies about half of its length on dorsal side.

Female unknown.

Differential diagnosis

The species is preliminarily attributed to the genus *Paracossus* HAMPSON, 1904. A precise attribution will be possible after revision of the still highly heterogenous group of species retained in this genus by SCHOORL (1990) after his revision. The male genitalia of the new species somewhat resemble those of *Paracossus pinratanae* YAKOVLEV (in print), but differ by a large saccus,

wider arms of transtilla, presence of triangular projections on juxta processes, and a longer aedeagus. Externally the species resembles the Bornean species *Paracossus speideli* (HOLLOWAY, 1986) but has a principally different structure of the arms of transtilla and the uncus.

Range

S. Cambodia.

Etymology

Khmers are the main nationality of Cambodia.

Paracossus microgenitalis spec. nov.

(colour plate XIX, fig. 7; text figs. 8, 9)

Material

Holotype ♂: Borneo S., Sabah prov., Trus Madi bei, Apin Apin, 1450 m, 8.-11.IV.1996, K. MARTINI leg., GPrHet MWM-9381 (MWM).

Description

Male. Forewing length 13 mm. Antenna bipectinate throughout. Body densely covered with light-grey hairs. Forewing very wide with rounded apex, it is light, almost white in the median area and at costal margin and somewhat darker at hind margin and has a wavy streaky dark pattern throughout. Hindwing grey.

Male genitalia: very small, uncus triangular, wide. Gnathos composed of two distinct halves and densely set with small spinules. Valvae spreading restricted. Valva has a small crest on its costal margin, valva apical margin less sclerotized than its basal part. Arms of transtilla hook-shaped, diverging. Juxta wide, carina-shaped. Saccus wide and rounded. Aedeagus straight, thin, with a small crest on dorsal side; vesica opening occupies about one third of its length; vesica without cornuti.

Female unknown.

Differential diagnosis

The species is conventionally attributed to the genus *Paracossus* HAMPSON, 1904 (see above). From species with bipectinate antenna known from Borneo it differs well externally, by a relatively very small male genital complex, a specific shape of the aedeagus and valva.

Range

Borneo, Sabah.

Paracossus schoorli spec. nov.

(colour plate XIX, fig. 8; text figs. 10, 11)

Material

Holotype ♂: Minahassa, N. Celebes, P. Jv. D. BERGH leg. (RMNH).

Description

Male. Forewing length 17 mm. Antenna bipectinate. Forewing light with a pattern of darker narrow wavy darker lines which are most distinct in an area between costal margin in medial zone and middle part of submarginal zone. Hindwing grey with a fainter and indistinct pattern of narrow wavy lines.

Male genitalia. Uncus and tegumen very wide, uncus flattened at apex and with an incision. Gnathos very wide, in frontal projection rectangular. Valvae wide, not fully opened. Arms of transtilla very wide with fused bases, hook-shaped, directed upwards. Saccus very wide, semi-circular. Aedeagus thick, slightly curved, vesica opening occupies a dorsal position, vesica without cornuti.

Female unknown.

Differential diagnosis

The species has been mentioned as new, but not described, already by SCHOORL (1990). The structure of its genital apparatus is very specific, in particular due to the very wide gnathos and tegumen. The species is conventionally attributed to the genus *Paracossus* HAMPSON, 1904.

Range

Indonesia, Sulawesi.

Etymology

The species is named in honour of Dr. J. W. SCHOORL who made an excellent revision of the generic composition of Cossidae.

Garuda gen. nov.

Type species: *Garuda galina* spec. nov.

Description

Moths of intermediate size. Antenna bipectinate for $\frac{3}{4}$ of its length, the distal $\frac{1}{4}$ simple, processes on antennal articles becoming shorter from base to apex. Forewing evenly dark, hindwing lighter, also evenly coloured.

Male genitalia. Uncus triangular, apically with a zone of sclerotization. Gnathos arms reduced. Valva simple, long and narrow, with a rounded apex. Saccus roundish. Juxta wide, semicircular with two lateral processes directed upwards. They are wide, leaf-shaped as gradually tapering from their upper one third to apex. Aedeagus very wide, short, vesica densely punctured and includes two stripe-like areas of sclerotization.

The genus differs well from the close genera *Phragmataecia* NEWMAN, 1850 and *Lakshmia* YAKOVLEV, 2004 first of all by the antenna structure (a soundly apomorphic character within the subfamily Zeuserinae BOISDUVAL, [1828]). From *Phragmataecia* it differs by a principally different uncus structure (in *Phragmataecia* it is composed of two distinct halves, it is smaller), by much larger juxta arms, absence of the medial fissure in the juxta, different aedeagus structure. Representatives of the genus *Lakshmia* have a more elaborated wing pattern, chequered fringe, much shorter uncus and a different shape of the juxta.

The new genus belongs to the subfamily Zeuserinae BOISDUVAL, [1828].

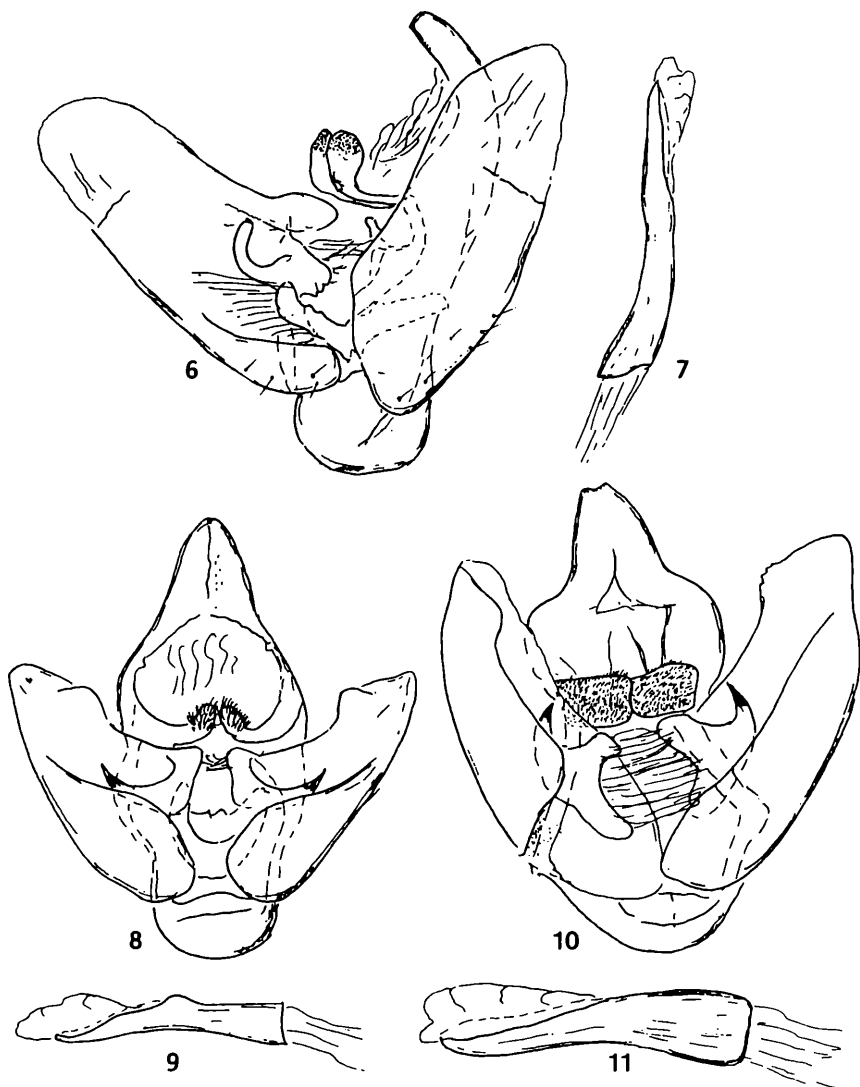


Fig. 6: Male genitalia of *Paracossus khmer* spec. nov., frontal projection.
 Fig. 7: Aedeagus of *Paracossus khmer* spec. nov., lateral projection.
 Fig. 8: Male genitalia of *Paracossus microgenitalis* spec. nov., frontal projection.
 Fig. 9: Aedeagus of *Paracossus microgenitalis* spec. nov., lateral projection.
 Fig. 10: Male genitalia of *Paracossus schoorli* spec. nov., frontal projection.
 Fig. 11: Aedeagus of *Paracossus schoorli* spec. nov., lateral projection.

So far a monotypic genus.

Range

S. China: Yunnan.

Etymology

Garuda is a sacral bird acting in many epic heritage of the ancient East.

Garuda galina spec. nov.

(colour plate XXa, fig. 1; text figs. 12, 13)

Material

Holotype ♂: China, Yunnan prov. (NE), Jinsha river, Tiger Leaping gorge, 2000 m, 5.V.2000, MURZIN leg., ex coll. A. SCHINTLMEISTER, GPrHet MWM-9381 (MWM).

Description

Male. Forewing length 17.5 mm. Forewing upperside grey with only a narrow (0.5 mm wide) yellow border along outer margin; fringe grey. Hindwing light-grey, becoming somewhat lighter to anal margin, there is an analogous yellow border, fringe colour the same as wing ground colour.

Male genitalia: see the genus description.

Female unknown.

Range

China, NE. Yunnan.

Etymology

The species is named in honour of my mother GALINA YAKOVLEVA.

Butaya gen. nov.

Type species: *Butaya gracilis spec. nov.*

Description

Light-coloured moths of intermediate size. Male antenna bipectinate, as in the genus *Phragmataecia* NEWMAN, 1850, in females it is simple throughout its length. Forewing wide, with a wide lighter stripe in its central part; hindwing unicoloured.

Male genitalia. Uncus elongate, tegumen triangular, valva simple with a rounded apex. Juxta semicircular, with two long lateral processes directed upwards and two small triangular processes directed sideways. Saccus small, rounded. Aedeagus thick. Vesica densely punctured, containing a belt-like sclerotization zone and bears on one of its side a small triangular appendix.

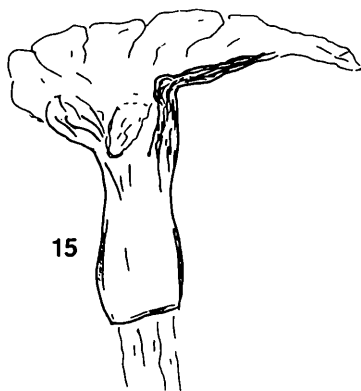
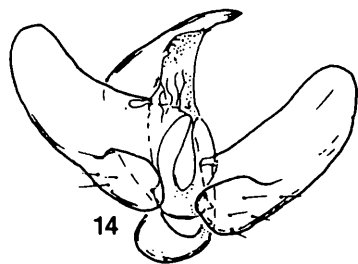
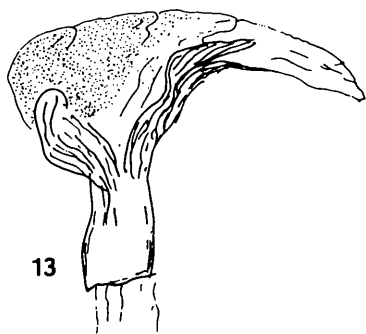
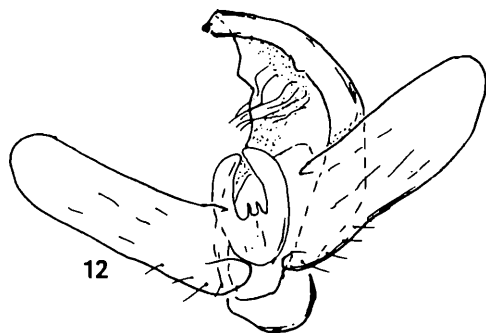


Fig. 12: Male genitalia of *Garuda galina* spec. nov., frontal projection.

Fig. 13: Aedeagus of *Garuda galina* spec. nov., lateral projection.

Fig. 14: Male genitalia of *Butaya gracilis* spec. nov., frontal projection.

Fig. 15: Aedeagus of *Butaya gracilis* spec. nov., lateral projection.

Diagnosis

Most close to the genus *Lakshmia* YAKOVLEV, 2004 from which it differs well by the wing pattern and the structure of the juxta and vesica, which bears an appendix. These characters are not observed within the known representatives of the group *Phragmataecia* NEWMAN, 1850-*Lakshmia* YAKOVLEV, 2004, that allows to erect a new genus.

The new genus belongs to the subfamily Zeuserinae BOISDUVAL, [1828].

So far a monotypical genus.

Range

S. China, Yunnan.

Etymology

Butay – people from Xishuangbanna Dai Autonomous Prefecture.

Butaya gracilis spec. nov.

(colour plate XXa, figs. 2, 3; text figs. 14, 15)

Material

Holotype ♂: China, W. Yunnan prov. Xishuangbanna Dai auton. pref., Puwen, 30 km SSW Simao, 900 m, 22°30' N; 100°02' E, 16.III.–10.IV.2000, loc. coll. leg., ex coll. Dr. R. BRECHLIN, GPrHet MWM- no. missing (MWM).

Paratypes: 1 ♂, 1 ♀, China, Yunnan, 30 km SSW of Simao, Puwen, 900 m, Xichuangbanna, 22°30' N; 100°02' E, 16.III.–10.IV.2000, loc. coll. leg., ex coll. Dr. R. BRECHLIN (MWM).

Description

Male. Forewing length 16–18 mm. Body densely covered with light yellow hairs. Forewing wide, rounded, yellow with a wide silvery lengthwise stripe accented below with a suffusion of black scales. Fringe light. Hindwing evenly coloured, light-grey. Male genitalia as in the genus description.

Female. Forewing length 24 mm, in coloration very similar to male.

Trismelasma robinson spec. nov.

(colour plate XXa, fig. 4; text figs. 16, 17)

Material

Holotype ♂: Philippines, Leyte (S), Mt. Balocaue, 800 m, near Mahaplag, April 2001, coll. Dr. R. BRECHLIN (MWM).

Paratypes (all from the Philippines): 24 ♂♂, same data as holotype (MWM); 5 ♂♂, Leyte Island, Mt. Bolog, 1140 m, 10 km E Mahaplag, June 1997, loc. coll. by Dr. R. BRECHLIN, GPrHet MWM-9360 (MWM); 1 ♂, Negros, Negros occ. prov., Kanlaon Mt., W-route via Mambucal, 17.–18.VII.1996., virgin forest, 1010 m, R. BRECHLIN leg. (MWM); 3 ♂♂, Luzon, Quezon Quezon Forest NP, 250 m, virgin forest, 14°01' N; 122°11' E, 19.VII.1993, SINIAEV & SCHINTLMEISTER leg. (MWM); 1 ♂, Luzon, prov. Chatlon, 15 km SE of Bontoc (Urwaldrand), 17°02' N; 121°03' E, 23.–24.VII.1993, SINIAEV & SCHINTLMAISTER leg. (MWM); 1 ♂, Leyte, Bolog Mt., 1140 m, 10 km E of Mahaplag, June 1997, leg. BAL, Coll. Dr. R. BRECHLIN (MWM); 1 ♂, Z. Luzon, Quezon Quezon Forest NP, 250 m, 14°01' N; 121°11' E, Lange Primärurwald, 8.–10.X.1988, CERNY et SCHINTLMEISTER leg. (AHC); 4 ♂♂, Samar Island, Capoto Mt., 600 m, April 2003, loc. collector leg. (ZFMK).

Description

Male. Forewing length 24–28 mm (25 mm in the holotype). Body densely covered with light-brown hairs. Thorax with a dark-brown stripe above. Wings generally light-brown. Forewing greyish-brown at base, with a light slanting transversal stripe and then a dark slanting stripe more expressed at the hindwing margin; proximally of it there is a vague pattern of wavy transversal lines on a light-brown background. Hindwing evenly light-grown.

Male genitalia structure characteristic for the genus. Uncus long, beak-shaped, gnathos arms free, narrow; valva wide, simple, with weakly expressed transtilla; saccus roundish. Aedeagus with lateral zones of sclerotization; vesica without cornuti.

Female unknown.

Diagnosis

The new species differs very well from other known representatives of the genus in having a very specific light-brown wing coloration. It was a roundish saccus while in most of its other congeners it is strongly processed behind and so is triangular.

Range

Central part of the Philippines (Leyte, Negros and Samar Islands).

Etymology

ROBINSON was the hero of the famous novel by D. DEFoe, that points out at an insular range of the new species.

Panau borealis spec. nov.

(colour plate XXa, fig. 5; text figs. 18, 19)

Material

Holotype ♂: China, W. Yunnan prov., Xishuangbanna Dai auton. pref., Puwen, 30 km SSW of Simao, 900 m, 22°30' N; 100°02' E, 16.III.–10.IV.2000 BRECHLIN's loc. coll. leg. (MWM).

Description

Male. Forewing length 26 mm. Body densely covered with grey hairs, there is a vague darkening in the central part of the thorax. Forewing grey with a weakly expressed pattern of darker strokes between veins in medial area. Fringe chequered, dark at veins. Hindwing with similar dark strokes between veins and lighter anal area; fringe chequered at outer margin and evenly light at anal angle.

Male genitalia structure in general similar to other representatives of the genus. Uncus triangulate, gnathos arms free, narrow; valva wide, simple, with a weakly expressed transtilla being an inner fold of its costal margin. Saccus small, rounded, juxta with wide lateral processes which are densely punctured, especially at apex. Aedeagus very large, with a robust spirally bent cornutus directed laterally to the aedeagus axis. Vesica with patches of scaly scabination in its basal parts.

Female unknown.

Diagnosis

Differing from the close species *Panau quarlesi* (ROEPKE, 1957) and *Panau stenoptera* (ROEPKE, 1957) in a somewhat smaller size, narrower wings, less elaborated wing pattern, densely punctured juxta processes and vesica strongly scabinated by scaly elements in its basal part.

Range

S. China, Yunnan.

Etymology

„borealis“ means „northern“ and reflects the fact that the type locality of the species, Yunnan, is the northernmost record of the genus.

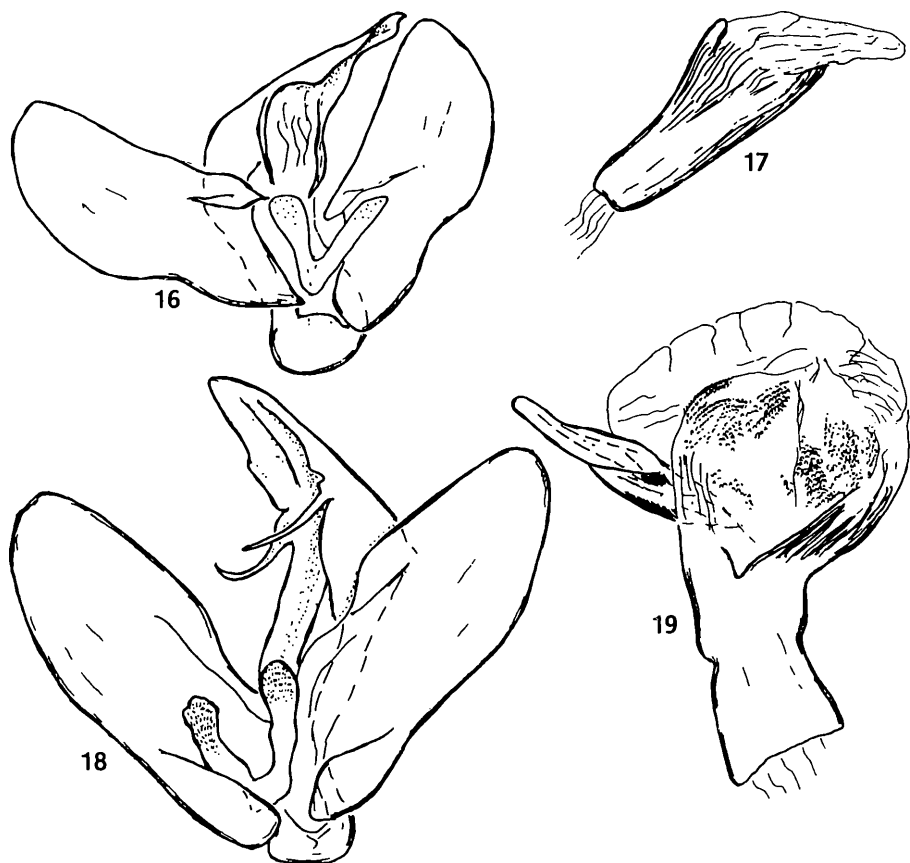


Fig. 16: Male genitalia of *Trismelasma robinson* spec. nov., frontal projection.

Fig. 17: Aedeagus of *Trismelasma robinson* spec. nov., lateral projection.

Fig. 18: Male genitalia of *Panau borealis* spec. nov., frontal projection.

Fig. 19: Aedeagus of *Panau borealis* spec. nov., lateral projection.

Acknowledgements

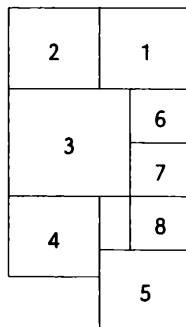
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References

- ARORA, G. S. (1976): A taxonomic revision of the Indian species of the family Cossidae (Lepidoptera). – Records of the Zoological Survey of India **69** (1–4). 160 pp., 4 pl.
- HOLLOWAY, J. D. (1986): The Moths of Borneo: Part I. Key to families; Families Cossidae, Metarbelidae, Ratardidae, Dudgeonidae, Epipyropidae and Limacodidae. – Malayan Nature Journal **40**. 166 pp., 22 pls., pls 1–9.
- HUA, B., CHOU, I., FANG, D. & S. CHEN (1990): The Cossid fauna of China (Lepidoptera, Cossidae). – Tianze Eldonejo. Yangling, Shaanxi, China. 147 pp, 8 pl.
- ROEPKE, W. (1957): The Cossids of the Malay Region (Lepidoptera: Heterocera). Verhandelingen der Koninklijke Nederlandse Akademie van Wetenschappen, Afd. Natuurkunde (Tweede Reeks). Deel LII (1). 60 pp., 9 pl.
- SCHOORL, J. W. (1990): A phylogenetic study on Cossidae (Lepidoptera: Ditrysia) based on external adult morphology. – Zoologische Verhandelingen **263**: 295 pp., 1 t.
- YAKOVLEV, R. V. (2004): A faunistic groups of Cossidae (Insecta, Lepidoptera) of Asian part of Russia. – Siberian Zoological Conference. Novosibirsk. 94 pp.
- YAKOVLEV, R. V.: Cossidae of Thailand. Part 1 (Lepidoptera, Cossidae). – Atalanta **35** (3/4): 335–351.

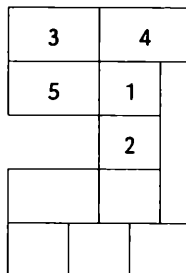
Explanation of colour plate XIX (p. 483):

- Fig. 1: *Patopta ganessa* spec. nov., holotype ♂.
- Fig. 2: *Cossus siniaei* spec. nov., holotype ♂.
- Fig. 3: *Cossus siniaei* spec. nov., paratype ♀.
- Fig. 4: *Cossus cossus orientalis* GAEDE, 1929, holotype (MHUB).
- Fig. 5: *Cossus cossus chinensis* ROTHSCILD, 1912, holotype (BMNH).
- Fig. 6: *Paracossus khmer* spec. nov., holotype ♂.
- Fig. 7: *Paracossus microgenitalis* spec. nov., holotype ♂.
- Fig. 8: *Paracossus schoorli* spec. nov., holotype ♂.



Explanation of colour plate XXa (p. 485):

- Fig. 1: *Garuda galina* spec. nov., holotype ♂.
- Fig. 2: *Butaya gracilis* spec. nov., holotype ♂.
- Fig. 3: *Butaya gracilis* spec. nov., paratype ♀.
- Fig. 4: *Trismelasmos robinson* spec. nov., holotype ♂.
- Fig. 5: *Panau borealis* spec. nov., holotype ♂.



address of the author

Dr. ROMAN V. YAKOVLEV

57–81, Chkalova

Barnaul, 656049

Russia

e-mail: yakovlev_r@mail.ru

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Fig. 1: *Patopta ganesha* spec. nov., holotype ♂.

Fig. 2: *Cossus siniae* spec. nov., holotype ♂.

Fig. 3: *Cossus siniae* spec. nov., paratype ♀.

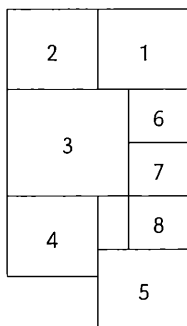
Fig. 4: *Cossus cossus orientalis* GAEDE, 1929, holotype (MHUB).

Fig. 5: *Cossus cossus chinensis* ROTHCHILD, 1912, holotype (BMNH).

Fig. 6: *Paracossus khmer* spec. nov., holotype ♂.

Fig. 7: *Paracossus microgenitalis* spec. nov., holotype ♂.

Fig. 8: *Paracossus schoorli* spec. nov., holotype ♂.



Colour plate XIX

